

REMARKS

Claims 1-20 are pending in the present application.

This Amendment is in response to the Office Action mailed July 7, 2011. In the Office Action, the Examiner rejected claims 1-4, 6-7, 12-15, and 18-20 under 35 U.S.C. §102(b); and claims 8-11, 16, and 17 under 35 U.S.C. §103(a). Applicant amended claims 1, 12, and 18. Reconsideration in light of the amendments and remarks made herein is respectfully requested.

Rejection Under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1-4, 6-7, 12-15, and 18-20 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,775,240 issued to Zhang et al. ("Zhang"). Applicant respectfully traverses the rejection and submits that the Examiner has not met the burden of establishing a *prima facie* case of anticipation.

Zhang does not disclose, either expressly or inherently, at least, (1) "a first signal including an original signal stream and a predetermined pattern" and "a second signal including the original signal stream and the predetermined pattern," and (2) "the predetermined pattern is substantially sinusoidal and comprises a single predetermined period, the single predetermined period being the inverse of a single predetermined frequency of the predetermined pattern" as delineated in independent claims 1, 12, and 18.

(i) Test signals in Zhang do not include an original signal stream and a predetermined pattern

Zhang merely discloses a test signal having a repeating pattern of known frequencies, amplitudes, and/or other characteristics being transmitted. In Figure 4, trace 410 represents the received reference-path signal, which is equivalent to the transmitted signal and trace 420 represents the received test-path signal. Ideally, the received test-path signal would be identical to the received reference-path except for the delay (Zhang, col. 8, lines 46-63; Figure 4).

In the Office Action, the Examiner alleges that the received test-path signal 410 and the received test-path signal 420 correspond to the "first signal" and the "second signal," respectively (Office Action, pages 2, 4, 5, and 7). Applicant respectfully disagrees and submits that the specification recites, *inter alia*, "As shown in FIG. 2..., a predetermined pattern 117 is inserted in signals 130a and 130b... to form a pattern-inserted data stream 130. Signals 130a and

130b thus each comprise the original data stream 121 and the predetermined pattern 117” (See Specification, par. [0018]; Figure 2, for further details). In contrast, claims 1, 12 and 18 recite “a first signal including an original signal stream and a predetermined pattern” and “a second signal including the original signal stream and the predetermined pattern” (claims 1 and 18) and “the inserted first signal including an original signal stream and the predetermined pattern and the inserted second signal include the original signal stream and the predetermined pattern” (claim 12).

In Zhang, the test signal is merely injected into or received from the handset circuit (Zhang, col. 6, lines 31-35). This test signal is then received as trace 410 (the received reference-path signal) via the reference path and trace 420 (the received test-path signal) via the test path (Zhang, col. 8, lines 46-56). Accordingly, the traces 410 and 420 is merely equivalent to test signal being transmitted (Zhang, col. 8, lines 50-55). Therefore, even assuming that the repeating pattern in the test signal corresponds to “the predetermined pattern,” the traces 410 and 420 cannot correspond to the first and second signals (claims 1 and 18) or the inserted first and second signal (claim 12) because the traces 410 and 420 do not include “an original signal stream,” as delineated in the claims.

In the Response to Arguments Section, the Examiner alleges that the test signal being transmitted includes both an original data stream and a predetermined pattern because using the broadest reasonable interpretation of the term “data,” the term “data is often viewed as the lowest level of abstraction from which information and then knowledge are derived,” citing Wikipedia.org, such that the pattern in Zhang is a data stream “used to derive information about the network” (Final Office Action, pages 2-3). Applicant respectfully submits that during patent examination, the pending claims must be “given the broadest reasonable interpretation **consistent** with the specification”. See MPEP 2111.

This interpretation of the term “data stream” is completely disregards the express language of the claims and is inconsistent with the specification. Specifically, the Specification states:

“[0018] FIG. 2 is a flow chart which, in conjunction with FIG. 1, illustrates an exemplary process of an exemplary embodiment of the invention. As shown in FIG. 2 (following the start block 200), a predetermined pattern 117 is inserted in signals 130a and 130b (block 210) to form a pattern-inserted data

stream 130. Signals 130a and 130b thus each comprise the original data stream 121 and the predetermined pattern 117. The pattern-inserted data stream 130 is then forwarded to source output 140 and to the sink device 102 in forms of signals 130a and 130b, each containing the same original data stream 121 and the same predetermined pattern 117. Alternatively, the predetermined pattern 117 can also be inserted separately into copies of the original data stream 121 to separately form signals 130a and 130b, which are then forwarded to the sink device 102 and to the source output 140, respectively. In an exemplary embodiment of the invention, the signal 130a is received in a digital media adaptor (DMA) 150 of the sink device 102 and then sent to the sink output 154, as well as to the display device 103.” (See, for example, Specification, par. [0018], for further details). *Emphasis Added.*

Accordingly, the first and second signals 130a and 130b include the original data stream 121 and the predetermined pattern 117. The Examiner’s interpretation of “data stream” merely ignores the recitation in the claims “a first signal including an original data stream” and “a second signal including the original data stream” by simply alleging that the pattern in the test signal is both the original data stream and the predetermined pattern. **In order to advance prosecution of the present application, applicant has amended claims 1, 12, and 18 to recite: “original signal stream” and “the original signal stream being different from the predetermined pattern.”** Accordingly, Zhang fails to teach these elements recited in independent claims 1, 12, and 18.

(ii) Test signal in Zhang does not comprise a single predetermined period

Additionally, Zhang illustrates, in Figure 4, a suitable test signal having a repeating pattern of known frequencies, amplitudes and/or other characteristics (Zhang, col. 8, lines 46-56; Figure 4). Contrary to that alleged by the Examiner, the repeating pattern in the test signal cannot correspond to the “predetermined pattern” because the repeating pattern in Figure 4 does is not “substantially sinusoidal and compris[e] a single predetermined period.” As illustrated in Figure 3 of the Specification, as an example, the waveform of the predetermined pattern 117 follows the exemplary Equation 1: $y = ((100 - x/\pi)/100) * \cos(x)$ (see Specification, par. [0020], Figure 3, for further details). Accordingly, the predetermined pattern 117 comprises a single predetermined period. Since the repeating pattern in the test signal in Zhang includes a plurality of known elements (i.e., 424a, 424b, 424c...) having a pattern of known frequencies, there is no teaching of the repeating pattern including a “single predetermined period.”

In the Response to Arguments Section, the Examiner admits that “the pattern in Zhang consists of multiple frequencies, multiple periods exist for each frequency segment but alleges that the overall pattern itself, which consists of segments 424a-424j, has a single predetermined period. This period is a unit of time (citing the horizontal axis of Figure 4) and there is only one period for the overall pattern.” (Office Action, page 3). Applicant respectfully disagrees and submits that as admitted by the Examiner, the overall pattern itself has segments 424a-424j, such that assuming that each segment is sinusoidal, there are 10 distinct periods/frequencies in that make up the overall pattern. The Examiner’s interpretation of a unit of time being a “single predetermined period” is inconsistent with the Specification and violates MPEP 2111.

In order to advance prosecution of the present claims, Applicant has amended independent claims 1, 12, and 18 to recite the definition of a signal’s period, specifically, **“the single predetermined period being an inverse of a single predetermined frequency of the predetermined pattern.”** Applicant respectfully submits that Zhang fails to teach this element of the claims.

Moreover, Zhang merely discloses that the sequence of calculations used to determine cross correlation of the received test signal and received reference signal is further used to determine bearer delay. The measurement of the bearer delay is performed by (1) selecting a period of received reference signal; (2) finding the period of the received test signal that most closely matches the selected period of the reference signal by repetitively shifting one of the signals a sample at a time and calculating the correlation coefficient each time, to find the total shift resulting in the maximum correlation and (3) calculating as the delay the time difference... between reception of the selected reference signal period and the matched test signal period (Zhang, col. 7, line 66 to col. 8, line 16). In the Office Action, the Examiner alleges that the selected period of the received reference signal corresponds to “a predetermined period” (Office Action, page 5). Applicant respectfully disagrees and submits that, in the present invention, the predetermined period refers to the period of the mathematical equation representing the predetermined pattern whereas the period being selected from the received reference signal in Zhang is merely any chosen segment of the signal. Accordingly, the selected period from the received reference signal cannot correspond to “a predetermined period” being included in “the predetermined pattern,” as delineated in claims 1, 12, and 18.

To anticipate a claim, the reference must teach every element of a claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Vergegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989). The Examiner bears the burden of presenting at least a *prima facie* case of anticipation. *In re King*, 801 F.2d 1324, 1327, 231 USPQ 136, 138-139 (Fed. Cir. 1986); *In re Wilder*, 429 F.2d 447, 450, 166 USPQ 545, 548 (CCPA 1970). Only if that burden is met, does the burden of going forward shift to the applicant. *In re King*, 801 F.2d at 1327, 231 USPQ at 138-139; *In re Wilder*, 429 F.2d at 450, 166 USPQ at 548. Once a *prima facie* case is established and rebuttal evidence is submitted, the ultimate question becomes whether, based on the totality of the record, the Examiner carried his burden of proof. See *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If the Examiner fails to establish a *prima facie* case, the rejection is improper and will be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Since the Examiner failed to show that Zhang teaches or discloses any one of the above elements, the rejection under 35 U.S.C. §102 is improper.

Therefore, Applicant believes that independent claims 1, 12, and 18 and their respective dependent claims are distinguishable over the cited prior art references. Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §102(b) be withdrawn.

Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 8-11, 16, and 17 under 35 U.S.C. §103(a) as being unpatentable over Zhang in view of U.S. Publication No. 2006/0072628 issued to Liu et al. ("Liu"). Applicant respectfully traverses the rejection and submits that the Examiner has not met the burden of establishing a *prima facie* case of obviousness.

To establish a *prima facie* case of obviousness, certain basic criteria must be met. For instance, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. MPEP §2143. Applicant respectfully submits that the combined teachings do

not address each and every limitation, and thus no *prima facie* case of obviousness has been established.

Furthermore, the Supreme Court in Graham v. John Deere, 383 U.S. 1, 148 USPQ 459 (1966), stated: "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." MPEP 2141. In KSR International Co. vs. Teleflex, Inc., 127 S.Ct. 1727 (2007) (Kennedy, J.), the Court explained that "[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to *determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.*" *Emphasis Added*. The Court further required that an explicit analysis for this reason must be made. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." KSR, 127 S.Ct. at 1741, quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006).

In the instant case, Applicant respectfully submits that the combined teachings of the cited prior art references do not teach or suggest all of the claim limitations. Furthermore, Applicant respectfully submits that there are significant differences between the cited references and the claimed invention and thus, there is no apparent reason to combine the known elements in the manner as claimed. No *prima facie* case of obviousness has been established.

Applicant further submits that a *prima facie* case of obviousness has not been established for dependent claims 8-11, 16, and 17. However, based on the dependency of claims 8-11, 16, and 17 on independent claims 1, 12, and 18, respectively, which are believed to be in condition for allowance, Applicant respectfully submits that claims 8-11, 16, and 17 are believed to be allowable for at least the reasons set forth above.

Therefore, Applicant believes that claims 8-11, 16, and 17 are distinguishable over the cited prior art references. Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §103(a) be withdrawn.

Conclusion

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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